

Work and Home Location: Exploring the Possible Role of Social Networks

by Nebiyou Y. Tilahun and David M. Levinson

Undoubtedly the transfer of information from person to person is a major part of many decisions. In location choice, be it for work or home, the influence of the flow of information could be large. With support from CURA's Faculty Interactive Research Program,¹ we sought to discover if the observed arrangement of people into homes and jobs supports the hypothesis that local information transfer leads to a higher incidence of people living and working in close proximity to one another. If true, the implication would be that certain locations would generate more trips to destinations than would be expected if local information transfer mechanisms were not involved.

Using U.S. Census Bureau data and Longitudinal Economic and Household Dynamics (LEHD) data provided by CURA's Minnesota 3-D project, we investigated the home and work locations of residents in different census blocks, with the goal of determining if people who live close to one another also work close to one another to a greater degree than would be expected at random. In this report, we consider what features of particular neighborhoods are associated with comparatively higher incidences of people sharing work locations, and speculate about the possible role of neighborhood-level or workplace social networks on the choice of home or work location.

Measures of Association

For the first part of our analysis, we measured whether people who live close to one another also work close to one another and, to the extent that they do, whether the level of home- and work-location sharing that is observed occurs purely by chance. We considered there to be a *home relationship* between two people if their residences were located in the same census block and



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One possible explanation for home-work associations is that social networks in a neighborhood or workplace lead to information-sharing about work vacancies and homes for sale.

a *work relationship* if their workplaces were located in the same census block. For our analysis, we randomly selected eight groups of home census blocks in the cities of Edina and Brooklyn Park. After controlling for the overall distribution of home-to-work distance in each group, we found that the observed home and work co-location relationships were more highly correlated than they would have been if work-place locations were randomly interchanged among the residents in each group. Our findings suggest that there is an underlying mechanism that leads to some people who live in close proximity to also work near one another. One possible explanation for such an outcome is the role that neighborhood-level and workplace social networks play in relaying information about possible work vacancies, available homes, and neighborhood quality.

Investigating Work-Destination Sharing

The second part of our analysis focused on what features of particular home blocks are associated with comparatively

higher incidences of people sharing work census blocks. We used logistic regression analysis to investigate the level of workplace sharing for each census block we examined. The model tells us what demographic variables are correlated with higher levels of workplace sharing based on various characteristics of the home block.

Our results indicate that residents who live in blocks where the average work location is farther away have, on average, 2.6% lower odds of sharing a work location with their neighbors in the same census block for each additional mile. In addition, as compared to residents of blocks that are within 5 miles of downtown Minneapolis, residents of blocks whose centroid is located 5–10 miles and 10–20 miles from downtown Minneapolis are 14.6% and 6.5% less likely, respectively, to share a work location with someone in their own home block. However, outside a 20-mile radius from downtown, we found 27.2% *greater* odds of workplace sharing among residents as compared to the 0–5 mile ring.

¹ Additional support was provided by the Intelligent Transportation Systems Institute at the University of Minnesota and by Techplan, a program of the State and Local Policy Program at the Hubert H. Humphrey Institute of Public Affairs.

Although the majority of home blocks we studied are predominantly White, about 4% have populations that are predominantly Black, Asian, or “Other” (which includes Native American, Hispanic, or mixed communities). Compared with blocks that are predominantly White, blocks where a majority of the population is Asian or other race have 31.4% and 7% higher home-work associations, respectively, while no differences are observed between predominantly Black and White blocks.

We also found that as the proportion of one-person households goes down in a block, the proportion of workplace ties increases. Although we detected no significant difference between blocks that have more than 25% single-person households, those that have less than 25% single-person households (more than 75% multiperson households) have 11% higher odds of workplace sharing among residents as compared to the base group that is 75% or more single-person household. The finding suggests that location decisions in multiperson households are significantly different than in single-person households. This may be because of within-household effects (for instance, people who live together also may share a work location) or because multiperson households have better social networks within their communities that lead to information transfer about jobs and housing.

We also found that as the median age in a block group increases, so does the likelihood that people who live in that block share a work block as well. Compared to the base group of people age 30 or less, those age 30–39 had a 6% greater likelihood, those age 40–49 a 10.7% greater likelihood, those age 50–64 a 25.5% greater likelihood, and those age 65 or older a 16.6% greater likelihood of sharing a work location with other residents of their home block. This finding suggests that mature households have a higher incidence of shared home and work locations than younger households.

Finally, we found that blocks that have a large number of owner-occupied homes have a higher incidence of people sharing a work block compared with blocks with relatively fewer owner-occupied homes. All other things being equal, the likelihood of sharing a work location decreases by about 4.2% and 5.3% when the proportion of owner-occupied households in a home block is between 50 and 85% or between 25 and 50%, respectively, as compared to



Compared to residents of blocks within 5 miles of downtown Minneapolis, residents who lived between 5 and 20 miles from downtown were less likely to share a work location with someone in their own home block. Outside a 20-mile radius from downtown, however, there was a greater likelihood of workplace sharing among residents.

the base group. But the trend does not carry over to blocks that are fewer than 25% owner-occupied, where no differences were detected with the base group that is more than 85% owner-occupied.

Conclusions

Our findings suggest that older populations, larger households, and, to an extent, greater numbers

of owner-occupied households lead to higher incidences of people from the same home block sharing a work block. Results for other characteristics were more mixed. Our results point to the possibility that as households “settle,” they do so in a manner that is nonrandom. These data argue for creating traffic forecasting models that take into account the driving forces

behind such systemic effects, in addition to “friction” measures that represent people’s reluctance to travel based on the cost of travel between home (origin) and work (destination) locations. The goal should be to go beyond simply including demographic variables and understanding what causes the differences observed across blocks.

One possible explanation of the block differences we observed is what we would call the *social network paradigm*, which posits that people choose home and work locations using information in part from contacts who are neighbors or coworkers. Location decisions that arise from these information flows might result in people living and working in closer proximity to one another with more frequency than would be randomly expected, all other things being equal. The results from our measures of association analysis support such a hypothesis by showing that the observed co-location at home and work are substantially different from

what would happen when people are randomly assigned to work blocks while keeping their home locations fixed.

Coupled with information about the spatial separation between work and home, understanding and explicitly including such mechanisms of location choice in our analyses would theoretically improve our ability to predict the matching of home (origin) and work (destination) blocks and thus improve traffic forecasting models. In addition, such findings give us hope for exploring innovative solutions to encourage carpooling among people who live and work close to one another, and in job-matching for people who are under or unemployed.

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The full version of this report can be found online at <http://nexus.umn.edu/Papers/WorkHomeSocialNetworks.pdf>.

CURA Launches Neighborhood Partnership Initiative

This past January, CURA received a two-year, \$200,000 grant from the McKnight Foundation to initiate the Neighborhood Partnership Initiative (NPI) program. The purpose of this new CURA program is to provide direct financial support to foster innovative, effective partnerships that increase involvement of immigrant, under-represented, and youth constituencies in solving neighborhood problems and improving the community for everyone.

Partnerships applying to NPI must include at least one government-recognized Minneapolis or St. Paul neighborhood organization (Minneapolis Neighborhood Group or St. Paul District Council) and at least one youth, immigrant, or arts organization with nonprofit status. The neighborhood

organization should be the lead partner. The program will provide grants of up to \$10,000 in direct financial support to successful applicants

The goal behind the program is to help neighborhood organizations partner with youth, arts, or cultural organizations to encourage cross-fertilization and collaboration. For example, neighborhood organizations may want to partner with an organization serving immigrants to reach out to immigrant residents in the community with safety or housing concerns. The immigrant organization can overcome language barriers and provide cultural skills to help neighborhood staff connect with immigrant residents. In turn, direct involvement of residents can contribute to a better

understanding of the issues they face, and how they can become involved in advocating for and formulating programs or policies to address their concerns. Similarly, partnerships with arts and youth organizations can assist neighborhood groups in reaching out to and involving new constituencies that might become active in formal neighborhood initiatives and deliberations.

Applications are currently being reviewed for projects commencing this summer. An additional application deadline will be announced in the fall of 2008. Look for an announcement in future issues of the *CURA Reporter*.

For more information about NPI, visit www.cura.umn.edu/NPI.php or contact Jeff Corn at 612-625-0744 or jcorn@umn.edu.